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ARCHAIC CULTURE HORIZONS IN THE VALLEY OF MEXICO

BY
A. L. KROEBER

UNIVERSITY OF CALIFORNIA PUBLICATIONS IN AMERICAN ARCHAEOLOGY
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THE ARCHAIC PROBLEM

About 1910 or 1911 there began to be recognized in the valley of Mexico remains of an "Archaic" culture apparently merging into the culture of San Juan Teotihuacan but ruder and anterior to it. This Archaic culture has also been denominated "tipo de los cerros," "de la montaña," and "Pre-Teotihuacan." Gamio and Seler incline to attribute it to the Otomi—Gamio to the ancestral Otomi, while Seler preferred to look upon it as a local or ethnic phase contemporaneous with Teotihuacan rather than earlier, in spite of Gamio's discovery of superimposed layers of the two cultures at certain spots near Atzacapotzaleco. The fullest exposition of Archaic remains is to be found in an Album of sixty-nine plates edited by Boas, the drawings by Adolfo Best, a publication of the Escuela Internacional de Arqueología y Etnología Americanas for 1911-12; the corresponding Texto, by Gamio, appeared in 1923. Seler also gives Archaic illustrations in his monograph on the culture of Teotihuacan,¹ but only of modeled heads and figures. Tozzer includes some Archaic pottery in the description of his discoveries at Coyotlatelco-Ahuitzotla near Atzacapotzaleco.²

A particular phase of Archaic is the Sub-Pedregalense—a culture found beneath the lava flow or pedregal of San Angel, a sheet twenty or more sq. km. in area lying several kilometers to the south of the capital, roughly between San Angel and Tlalpam. The San Angel pedregal is a flow of basalt, of unknown age historically but geologically quite recent, which, issuing from the peak known as Ixtle, covered earlier Pliocene or Miocene andesitic flows and the deposits on them. As in the case of the Archaic culture level as a whole, there has been some discussion as to priority of discovery of the sub-pedregal remains. There exists, however, in the Museo Nacional, in charge of Dr. Nicolás León, a small collection of potsherds, human and animal bones, and rock and soil samples said to have been taken from under the San Angel lava by or for the French Mission Scientifique more than half a century ago, and then long forgotten. The most important description of an exploration is by Gamio;³ the earlier literature on the pedregal is given fully by Beyer.⁴

¹ *Gesammelte Abhandlungen*, v, 405-585, 1915, pls. 20 (fig. 2), 21, 22; figs. 40-43.

² *Bur. Am. Ethn. Bull.* 74, 1921.

³ *Am. Anthr.*, n.s., xxii, 127-143, 1920.

⁴ *Memorias de la Soc. Cient. Antonio Alzate*, xxxvi, No. 1, 1917.

On my arrival in Mexico March 1, 1924, Dr. Gamio, chief of the Dirección de Antropología, of the Secretaría de Agricultura y Fomento, suggested the desirability of a stratigraphic exploration within the Archaic, and generously put at my disposal such assistance and forces as I might need. After some days of orientation and survey both of the surface of the pedregal and its edges and underlying strata as revealed especially by the canteras or quarries



Fig. 1. Archaic sites in the valley of Mexico. 1, San Angel; 2, Copileo; 3, Coyoacan; 4, Tlalpam; 5, Cuicuilco; 6, Culhuacan; 7, Cerro de la Estrella; 8, Atzacapotzaleo; 9, San Miguel Amantla; 10, Santiago Ahuizotla; 11, Zacatenco; 12, Ticoman; 13, El Arbolillo; 14, Pyramid of the Sun, San Juan Teotihuacan.

that have eaten their way into it, an excavation in continuation of those made by Dr. Gamio adjacent to the Cantera Copileo at San Angel (map, fig. 1) seemed most promising. The sublava explorations here have been extended since the publication of Dr. Gamio's just cited report. In particular, a tunnel known as number 7 had been driven in about 100 m. Toward or beyond the middle of this

tunnel, the so-called "tepetate"—really a tufa—that underlies the humus or tierra vegetal in which the human and cultural remains are found, dips and the soil between it and the lava becomes thicker. At the end of the tunnel the soil forms a layer of more than 4 m., as opposed to an average of perhaps 1 m. nearer the edge of the pedregal floor. In this accumulation there seemed a possibility of a cultural change being traceable; and accordingly work was begun here on March 11, to be followed more briefly at other spots at the same site, until April 12.

It may be said at the outset that the hope of a cultural development being traceable within the subpedregal horizon proved illusory. No certain differences between lower and higher levels could be discerned. Nevertheless, the choice of excavation proved fortunate for comparisons between subpedregal and other Archaic remains. The intense heat of the current of liquid basalt has scorched the soil to an average depth of a meter, turning it usually black, sometimes vermilion, carbonizing roots, and destroying the color and altering the surface of pottery. Obviously this burned or refired pottery is not directly comparable with the unburned found in other localities; and much the majority of material previously excavated under the pedregal has been burned, because of the pottery-bearing stratum being little if any deeper than the effect of the lava heat. The new excavation however afforded nearly 3 m. of cultural deposits, about two of them unaltered, in one area at any rate, and of exactly known provenience, thus making possible reliable comparisons with other Archaic localities as to frequency of occurrence of types.

EXCAVATION A AT SAN ANGEL

Excavation A was made to a breadth of 1.5 m. to the left of the end of tunnel 7, at right angles to it (fig. 2). Layers .2 m. thick and extending inward 1 m., and therefore of a bulk of .3 c. m., were taken one by one, except that the uppermost layer was of double thickness, on account of the difficulty of extracting a thin layer from directly under the pedregal. The third meter inward was taken in two vertical columns of .5 m. depth each, denoted as IIIa and IIIb. The soil from each layer of each meter or half-meter was carried to daylight and gone over by hand.

In the first meter, pottery was encountered as far down as layer 13, that is to a depth of 2.6–2.8 m. Layer 14 was sterile, and in a hole

carried 1.5 m. below it in a vain search for underlying rock, no pottery was found. In the second and third meters the depth of pottery was somewhat less, and in the third the concentration in the upper layers greater. A total of 4050 pieces was taken—all sherds, except for a few modeled heads or figurines and one nearly complete little vase.

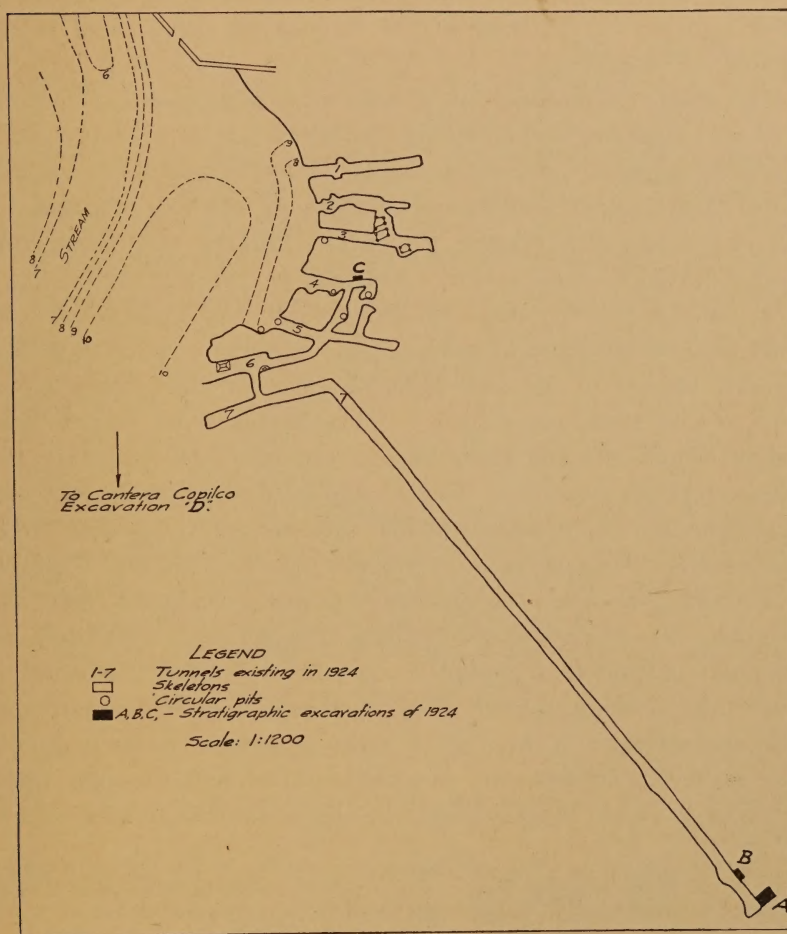


Fig. 2. Plan of excavations at Copileo, San Angel.

The distribution of these ceramic fragments was as follows, by layers downward: meter I, 265, 271, 124, 57, 123, 116, 149, 140, 192, 217, 264, 68, 4, total 1990; meter II, 152, 244, 116, 61, 33, 27, 11, 24, 38, 106, 82, 10, total 904; half-meter IIIa, 255, 222, 89, 30, 19, 3, 4, total 622; half-meter IIIb, 28, 384, 77, 28, 12, 0, 0, 0, 4, 1, total 534. By halving the first figure for meters I and II on account of double

thickness of the stratum, and doubling all the other figures for IIIa and IIIb on account of the half-length of these sections, sherd frequencies per unit of .3 c. m. result. These are the numbers entered in the diagram, figure 3, a section of excavation A, which also indicates the sherd frequencies by shading. These frequencies suggest a lenticular deposition, as shown by the curved lines in the drawing, which represent a rounding of the frequencies encountered in the rectangular blocks.

Just what this distribution of cultural remains means in the way of their deposition, is difficult to conjecture. It is probably not a deposition by natural agencies, as the entire excavation is without sign of stratification, and its mass consists of an even admixture of clay and sand, with organic material.⁵ Nothing was found that could definitely be construed as a hearth.

A dozen waterworn stones weighing from 3 to 10 kg. each were found in the sixth layer of meter I and two more—one of them considerably larger—in the same level of meter II. But there was no fireplace with them, nor a burial. Three layers above was the vase already mentioned; and three higher, just below the pedregal, two more waterworn boulders. These boulders suggest reasonably firm land at the time the potsherds became incorporated in the soil, rather than swamp. Perhaps the most probable origin of the soil is mostly aerial while the site was overgrown with vegetation and also inhabited. An average of 300 to 400 sherds per cubic meter does not accumulate in soil that is only occasionally wandered over; and in spots—these seeming to come chiefly in the shape of horizontal lenses—the concentration is three to six times as great. As excavation A is by no means unique, and the whole of the area through which the seven tunnels ramify, as well as adjacent exposed areas, shows

⁵ The top of excavation A seems sandier than the rest and is lighter in color—gray. It was burnt so by the heat of the lava flow, according to Sr. Díaz Lozano, and acted as an insulator for the layers below. In some parts of tunnel 7, and other tunnels, the burnt layer is reddish, or even bright red, and pottery in it has become of the same color. This fact is due to the presence of a greater proportion of ferruginous clay, which served as a less good insulator to the layers below. Also in tunnel 7 there may be seen half-lenses of red against the pedregal (the convex side below), separated by truncated cones of black or gray sandier material. To Sr. Lozano these suggest a swampy hummock formation. He does not believe that the site was lake-covered at the time of the pedregal flow, because most of its undersurface is free from steam formations and breaks such as contact of lava with a body of water would have produced. There may or may not have been a stream in the vicinity. The present little "river" that flows by Copilco represents a stream course eroded since the pedregal, and bearing against its edge; as a similar stream follows the opposite southeastern edge of the same pedregal flow at Cuicuilco.

abundant pottery and occasional other artifacts and bones, it must be concluded that the tract was inhabited more or less continuously for a considerable time. Certainly the nine feet of sherd-bearing sandy clay in excavation A were some time in piling up. Whether the population lived near a stream or near the lake that filled much of the valley, remains for more extensive exploration to determine.

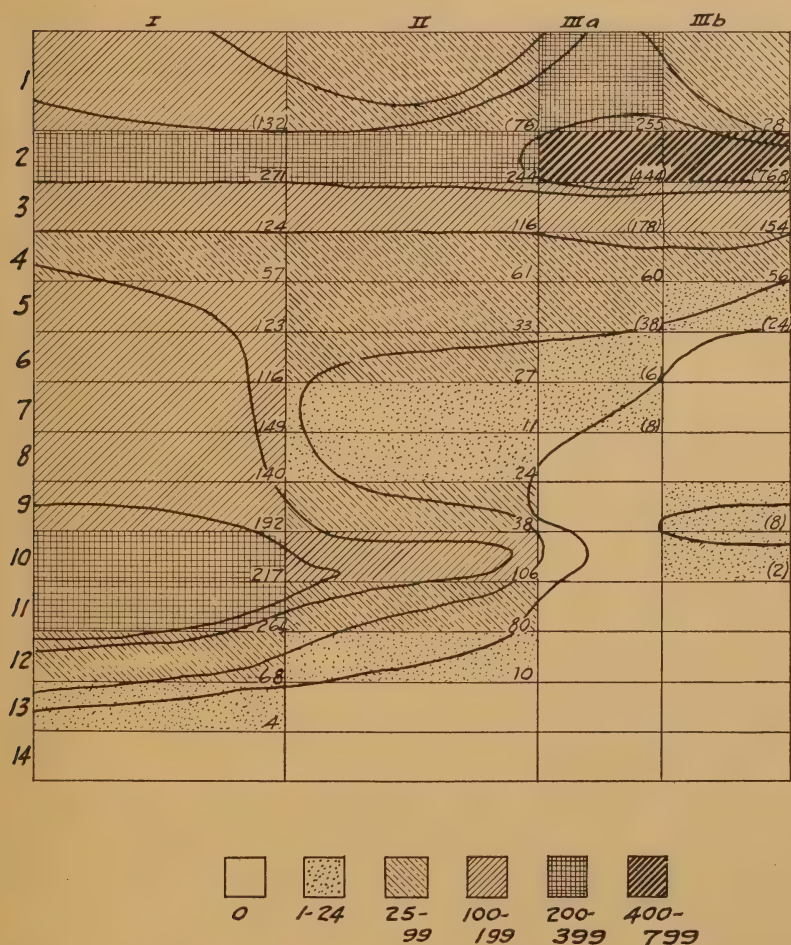


Fig. 3. Section of excavation A, with frequency of pottery fragments.

As for the two strata of maximum pottery-density (fig. 3), it would be premature to conclude from them that an intervening diminution of population had taken place. At the time that layers 4 to 7 were building up, another spot in the immediate vicinity may have received the mass of the débris which at an earlier and again

at a later period was being deposited in layers 10 to 11 and in layer 2 at the site of excavation A. Thus excavation B, only five meters away, is sterile in layers 10 to 11 and almost so in 2, whereas layers 3 to 5 contain more than nine-tenths of all the artifacts found at B.

Nevertheless, the accumulation of sherds in the lower levels of the first two meters of A is fortunate, as it added greatly to the number of unburned pieces, bringing this up to nearly half of the total found.⁶

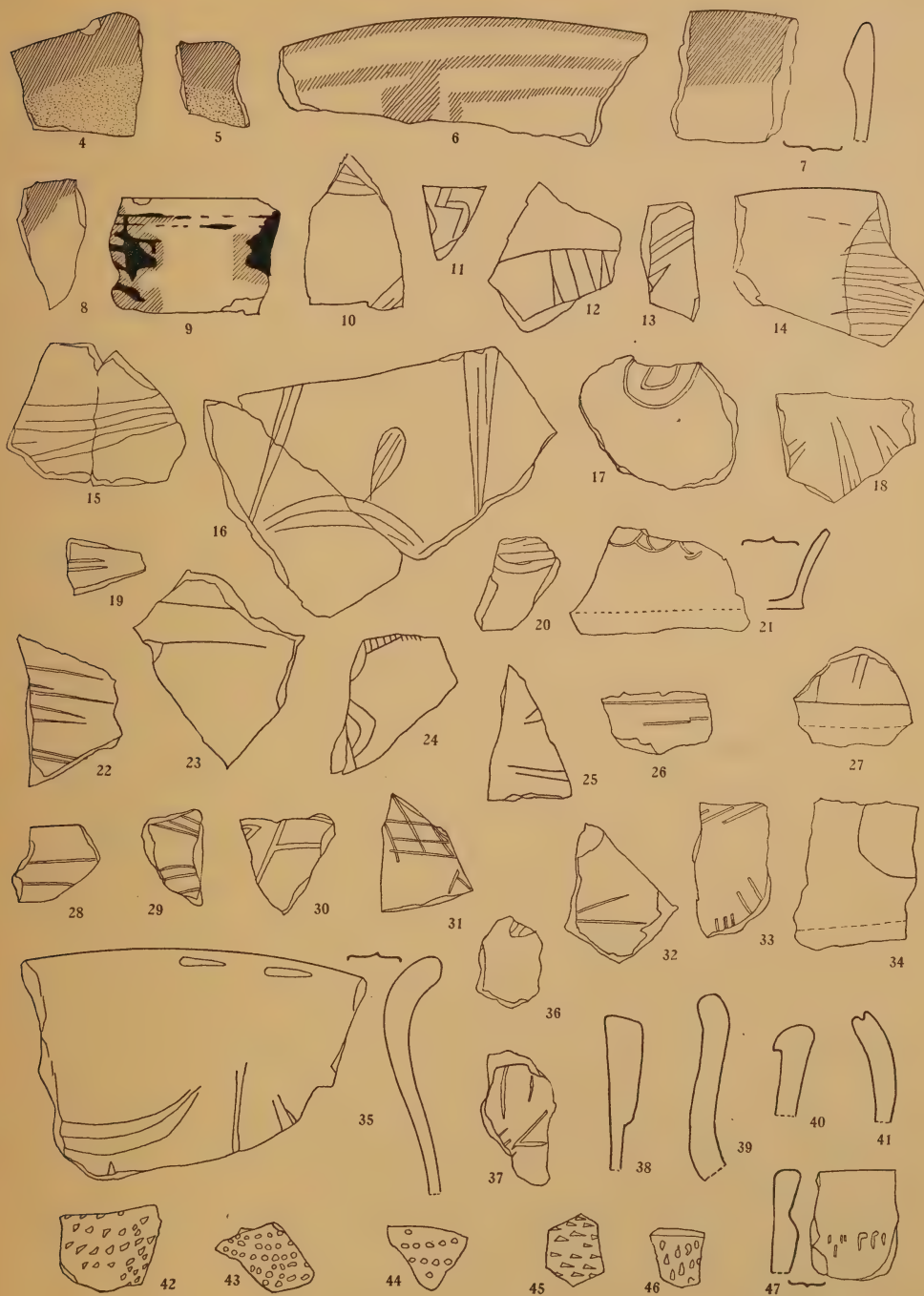
The unaltered sherds of site A are either red; or of a color ranging from dark gray or light brown to dark brown or smoky black; or red on one side and brown on the other (usually but not always the outer), as if darkened by use in fire subsequent to baking. The body of the red ware is sometimes red throughout its mass; more often the interior remains gray, merging into red toward the superficies. The red is occasionally well smoothed, only rarely polished to lustrousness, for the most part rather rough; the brown is usually polished somewhat better. Incised ornament is more frequent on the brown. Both constitute a fairly thin ware, and as might be expected the pieces are small.⁷ There are no really heavy pieces such as were subsequently encountered at Cuicuilco and Ticoman. Possibly 1 per cent of the ware is white slipped, usually on both sides; and some of the pieces of this, but a minority, are incised.

The lava burnt ware at A is an obscure black or gray, darkened all through its mass, and usually with its texture considerably roughened, although incised ornaments are still distinguishable. A few of the burnt pieces are a pale gray or buff, as if coated, and of quite rough surface for thin fragments. Perhaps these represent pottery once white slipped.

About one-tenth of all the sherds are from rims or borders of vessels. About two-thirds of these curve or roll outward, some slightly, some decidedly (figs. 21, 35, 39, 51, 55, 56, 86); about one-sixth curve slightly inward; about a sixth are straight edged or fragments too

⁶ Layers 1-3 at A contained 2146 sherds; layers 4 to 13, 1904. In layer 3, 60-80 cm. down, some practically unaltered pieces began to appear; in layer 4, especially in the second meter, a certain proportion of partly burned ones persisted.

⁷ They average 8-9 gr.; 33.5 kg. for 4050 sherds. I, 7-12, and II, 10-11, average 10-15 gr. per piece. These represent one lens of deposition; but the other, in IIIa and IIIb, 2, averages only about 5 gr. In excavation B, 683 sherds weighed 6.5 kg.

Figs. 4-47. Copileo, San Angel. $\times .5$.

small to determine.⁸ There are no rims turning at right angles, such as are found at certain other Archaic sites. About half of the engraved ornamentation occurs on border fragments, both line incised and point-dented.

As already stated, there seems to be no significant change of proportional frequency of any trait from lowest to top layer at site A.

OTHER EXCAVATIONS AT SAN ANGEL

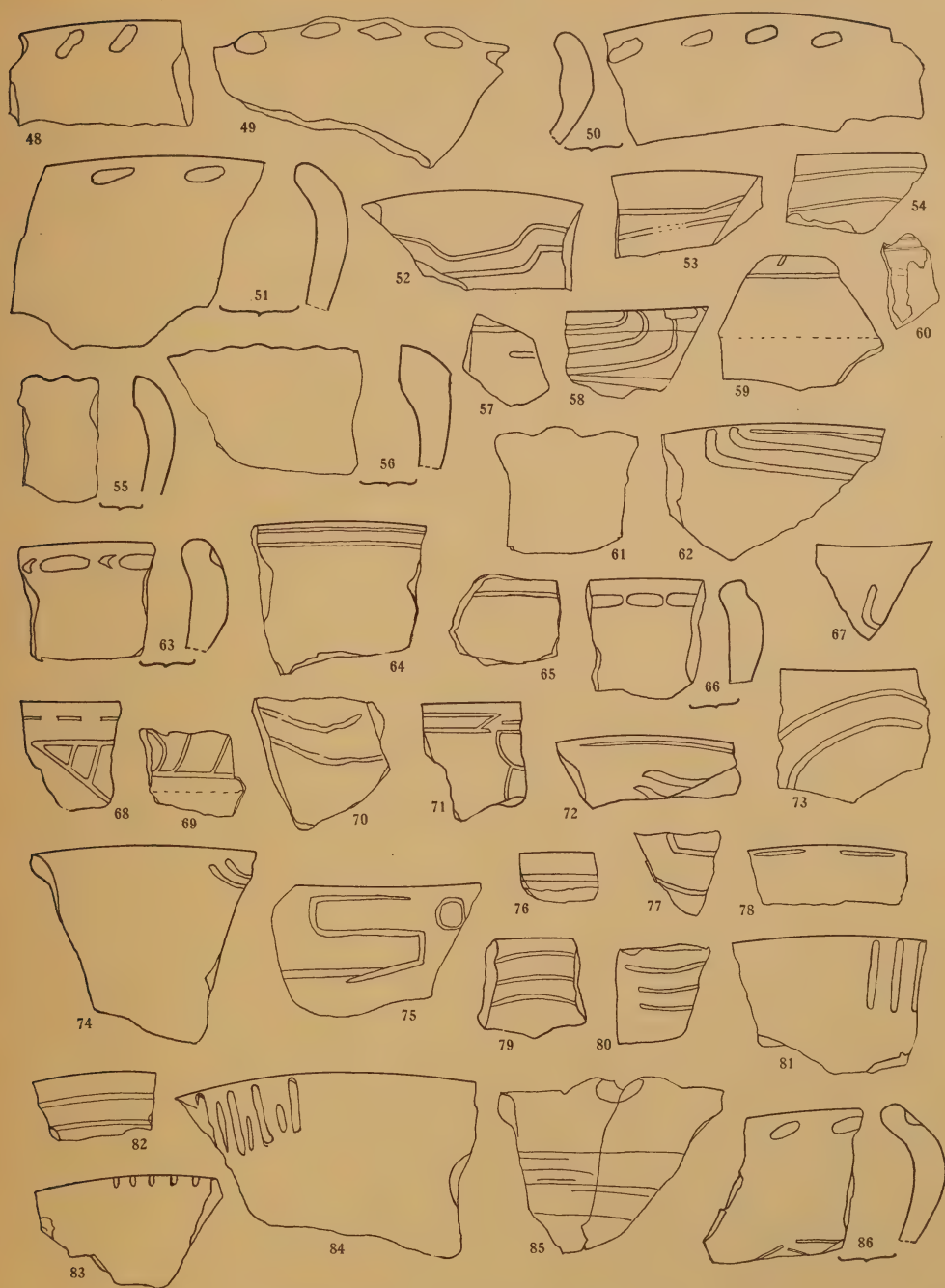
After comparisons with other sites were undertaken, excavations were made at several other spots at San Angel-Copileco in the hope especially of securing more unburnt material; but none was as prolific in this material as the first two meters of A.

Excavation B.—On the same side of tunnel 7 as A, not quite so near the end, 4.1 m. separating the nearer edges of the two cuts (fig. 2). Excavation 1.5 m. broad, 1 m. in, 2.4 m. high, taken in layers like A, the two lowest, 10 and 11, from 2 to 2.4 m. down, being sterile; in 1 to 9, 683 pieces, of which more than 500 burned. Occurrence by layers, downward, 10, 10, 273, 262, 88, 23, 7, 4, 4.

Excavation C was made in tunnel 4, opposite the end of a pavement or layer of waterworn stones lying close under the pedregal on the west side of the tunnel. About .8 c. m. was removed. The number of sherds was 765, of which 1 line-incised, 1 border dented, 3 corrugated.

Excavation D lay outside the tunnel area work by the Dirección de Antropología, about 150 m. west, in the Cantera Copileco, a quarry operated by another department of the government. The engineer in charge, Sr. Vargas, extended every courtesy and assistance. A spot was selected in which the cap of pedregal was of minimum thickness and lay broken, as if it had formed the top of a gaseous bubble, raised from contact with the soil while hot, but subsequently collapsing. A trial yielding only a moderate number of sherds, digging was swung to the west, where a block of lava had previously been rolled off the several cubic meters of soil immediately below it, in the course of quarrying. In general, blasting powder is used only to a

⁸ The exact figures are: site A, 271 outcurving rims, 62 in, 67 straight or doubtful, total 400 border pieces out of 4050. Site B, 39, 5, 9, total 53 of 683. Site D, 32, 1, 8, total 41 of 264. Total, 342, 68, 84, or 494 of 4997. For comparison: Among the first 818 sherds taken from excavations 1 and 2 in the interior of the Pyramid of the Sun (see below), there were 86 rim pieces, 48 of them outward, 18 inward, 20 straight or doubtful. The greater proportion of incurving rims here is due to a frequency of rather thin polished ware, in which there were 15 incurved to 20 out; whereas in rough and coarser ware the proportion was 3 to 28.

Figs. 48-86. Copilco, San Angel. $\times .5$.

limited extent in the removal of the pedregal. Where the cap is not too thick and coherent, the underlying soil is removed until the overhang of basalt breaks off with little assistance.

In this case, the sandy soil proved to contain three lines of water-worn andesitic boulders, set back of one another so as to form a rude staircase (pl. 20*a*). The stones within the broken line had been thrown down before the terracing was recognized and were then replaced, with what approach to an accurate reconstruction it is impossible to say. The other stones were photographed in their original places. The type of stones and the manner of lining them against soft earth suggest the "altar" found a few meters below the top of the "pyramid" or cone of Cuicuilco, the prepedregal structure partly excavated near Tlalpam by Professor Byron Cummings⁹ in collaboration with the Dirección de Antropología. The Cuicuilco cone itself is faced with polygonal stones, very irregular, but fitted together with considerable care.

To the left of the little stairway at Copilco the vertical bank of soil contained small boulders, irregularly distributed, thinning out to the left or east, away from the stairs. Underneath the small stones, near the steps, a layer of wood ashes was discernible; and above the vein or bed of ash, where this tapered to an edge, in the vicinity of most of the sherds encountered, an adobe brick lay flat and could be partly removed for preservation. This was said to be the first adobe found under the pedregal. Literally, this statement may be a fact; but it would seem that at least part of the top of the cone of Cuicuilco, which though it rises out of the pedregal was presumably completed before the pedregal flow arrived, consists of adobes. Cummings, it is true, speaks of a layer of volcanic ash on the summit, and so it appeared to be at the time to one of his workmen who participated also in my excavations; and the mass is yellowish and crumbly. But a summer's rains washing down the face of the vertical cut made through this summit have brought out the brick structure, the adobes resisting erosion better than their joints.

There is, then, at this spot D of Copilco, no type of construction fundamentally new for the subpedregal Archaic, although the aggregation of simple remains is novel. It is useless to speculate on their function until the whole cluster shall have been excavated. This can be done only after removal of the lava cap, which, because of its rela-

⁹ National Geographic Magazine, XLIV, 203-220, 1923; Art and Archaeology, XVI, 51-58, 1923.

tive thinness and broken condition here, cannot safely be tunneled under. Its removal was impossible during the brief remainder of my stay in Mexico.

The 264 sherds at D included about 100 which, according to position or contact, had been burned blackish, or buff gray, or orange red. The remainder were dark brown, red, and red and brown on opposite sides, in about the same proportion as at A. Five fragments seemed to have been painted, but of only one of these, a red and white border, could this be asserted with assurance. Two were line incised, 1 border dented, 6 corrugated, 4 parts of modeled figures.

Excavation DX, in the quarry edge about 25 m. west of D, made by the workmen in red top soil, yielded 240 pieces, mostly burned orange or vermilion, some yellow, gray, or black, and all roughened by the intense refiring. These included 1 incised, 2 or 3 corrugated, 1 leg of a modeled figurine.

SAN ANGEL POTTERY STYLES AND CULTURE

Between one and two per cent of the sherds obtained at San Angel are decorated. The proportion of decorated vessels was probably larger: ornament being often confined to part of the surface, such as the border, a vessel was likely to break into more plain than decorated pieces. Still, plain vessels were obviously in the great majority. Of decorated ones, those with some form of incising outnumbered painted ones about seven to one. There is no clear evidence of slip except in a small number of pieces covered on one or both sides with a rather heavy white, after which some of them were incised; red and white vessels seem also to have been washed with white before the red overpaint.¹⁰ A certain degree of polishing was frequent; but highly polished pieces can scarcely be said to occur. Figures 4 to 86 show all decorated pieces of moment found in excavation A.

The following styles of ornamentation are distinguishable.¹¹

Painted red and white.—My own excavations yielded but few of these sherds, and these of the simplest pattern except in one or two reburned and more or less altered pieces. Dr. Gamio's previous and much more extensive tunnelings resulted in the recovery of about

¹⁰ One sherd found by Dr. Gamio suggests white painting after the red, and a few others may have been made the same way.

¹¹ Compare H. K. Haeberlin, *Types of Ceramic Art in the Valley of Mexico*, *An. Anthr.*, n.s., xxi, 61-70, 1919; and A. M. Tozzer, *Bur. Am. Ethn.*, Bull. 74, pp. 47 *et seq.*, 1921 (his type 1 being wholly and types 2-9 partly Archaic).

a dozen sherds in good condition, which are preserved in a show case in the excavations, and most of which are illustrated in figures 87-96. To judge by my experience, at least as large a number and probably several times as many imperfect or damaged sherds must have been encountered in this excavation. It will be seen that the patterns are simple: mostly rectangular, or nothing but border bands; though there is one clear case (fig. 87, possibly also 92) of a curvilinear design.

Painted red and yellow.—This is a style strongly represented at other Archaic sites in the valley of Mexico—see for instance the Boas Album and Gamio Text. The yellow is mostly brownish slip or body, whereas the red is painted on. The Gamio collection from San Angel contains no R-Y¹² pieces, but I found two, in A-I-5 and A-II-6, both small and suggesting that the design was nothing more than a band of red.

Painted red, white, and yellow.—This is R and W painted on the same yellowish background as in the last class. I found none such, but the Gamio collection contains two sherds (figs. 89, 93), in one of which, however, the unpainted “yellow” slip or paste is really reddish.

Incised white has already been described: the incisions are often nothing more than a line or two paralleling the border, and for the most part seem to have been made before firing.

Line incised before firing (Gamio’s *ceramica grabada*) is the most frequent style of ornamentation. It is less frequent on red than on dark ware. The lines are sometimes fairly broad and usually trough-like in contour, as if made with the rounded end of a stick. Designs are simple, sometimes nothing more than lines parallel or vertical to the edge of the vessel, although both horizontal and vertical meanders occur. Quite common is a line, or a pair, or three of them, dropping from the border and then bending so as almost to parallel it (figs. 58, 62, 100, 102). Characteristic closed and unclosed loops appear in figures 71, 75, 97-99, 103, 105-121.

Line incised after firing, or scratched (Gamio’s *ceramica raspada*), is less frequent than the preceding, but still abundant. The preserved examples suggest a somewhat freer and larger building up of patterns (fig. 16), with a use of parallel lines sometimes approaching hatching (figs. 14-15).

¹² R, Y, W, B denote red, yellow, white, black.

Figs. 87-118. Copilco, Gamio's excavations. $\times .5$.

Corrugated or cuneiform.—The latter, Tozzer's apt term, well describes most of the San Angel specimens of this group, the indentations being made with the end of a stick held at an angle (figs. 42-47). The general term 'corrugated' has however the advantage of applying to ware not strictly cuneiform in its indentations, such as the roughened pieces shown in the Boas Album.

Border-dented.—Indentations along the rims of vessels, sometimes roundish, more often ovals placed diagonally, sometimes a succession of longitudinal slits or scars (figs. 48-51, 63, 66, 86). Transverse indentations seem rather to be short line incisions, not following the border continuously (figs. 81, 83, 84).

Wavy border, produced by flattening out or modeling the rim, tends to merge into the preceding group, since indentations often push out intervening portions of the edge (figs. 55, 56, 85).¹³

Grooved ware, with finger-drawn or modeled depressions, either horizontal or diagonal, occurs occasionally, as a couple of fragments preserved by Gamio attest. With this type might be included *double-fluted* ware, occurring on bowls in which two rounded grooves and two ridges follow the rim before the wall of the vessel begins to constrict toward the bottom.

Rims have already been discussed.¹⁴ Few if any pieces were found with more pronounced out-curl than figure 35. In-curls are generally slight (fig. 41).

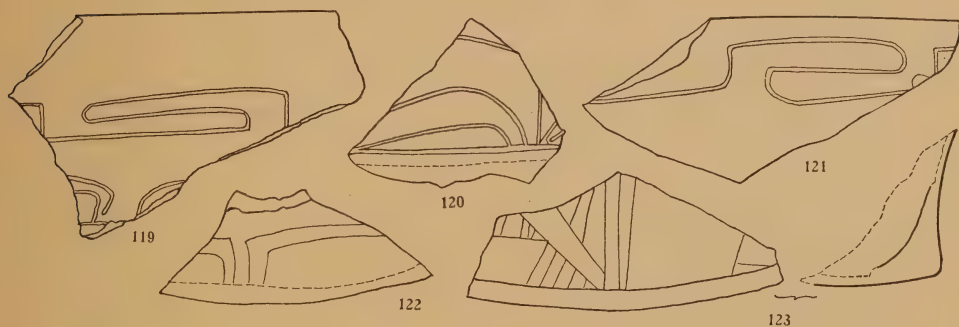
Feet and handles are relatively few. Feet occur conical, hemispherical, and in inverted pear form. There are also slenderer pieces, that look like legs broken from figurines, but some of which were almost certainly the feet of bowls. Handles are mostly cylindrical loops, of the type common in Archaic pottery elsewhere; but the Gamio collection also contains a flat loop handle, a straight dipper handle, and small imitation handles of raised modeling.

Forms.—Few complete or nearly complete vessels have been recovered. Bowls with a sharp-edged base are typical, to judge by the comparative frequency of sudden base turns (figs. 21, 123). These concave-sided bowls suggest the cylindrical bowls and jars of the later Teotihuacan style. The vertical or somewhat spreading feet under bowls, apparently always three in number, also represent a form that

¹³ Wavy border has been counted with border-dented in the subsequent statistical comparisons.

¹⁴ In most illustrations, the hollow of the vessel is to the left of the sherd seen in cross-section; the contrary may hold for figures 51-56, 63, 66, 86.

has persisted with only minor variations¹⁵ through the Archaic, Teotihuacan, Aztec, and modern periods. In view of the virtual absence of three-legged pottery from the Peruvian and Pueblo cultures, this continuance is by no means a self-evident phenomenon. It is one expression of certain permanent particularities that have characterized Mexican civilization as far back as it can be traced.



Figs. 119-123. Copileo, Gamio's excavations. $\times 5$.

The pottery heads and figurines of San Angel are like those from other Archaic sites, and some have been illustrated.¹⁶ I add those found in the course of my diggings (pl. 20*b*). Of special forms, the following discovered by Dr. Gamio call for mention:

Fire god,¹⁷ marked by seated attitude, folded arms, and face wrinkles suggestive of age. I am inclined to agree with Gamio¹⁸ that this may be the fire god; but Archaic modeling is so rude that its intentions must be interpreted with reserve. Further, there seems as yet not to have been found at any purely Archaic site a representation of Tlaloc, a much more frequently modeled and painted divinity in later times than the fire god. Tlaloc is abundant at Teotihuacan, in fact one of the few identified deities of that culture, according to Seler.¹⁹

A fat-bellied, complacently seated figure, knees drawn up, arms on them.²⁰

Upper part of a figure holding right hand to mouth.

¹⁵ Such as a tendency toward cylindrical or short rounded feet in Teotihuacan time and flattened oblong ones in the Aztec period.

¹⁶ Gamio, *Am. Anthr.*, n.s., XXII, 135, fig. 8, 1920.

¹⁷ Same, right half, center.

¹⁸ *Am. Anthr.*, n.s., XXVI, 311, 1924.

¹⁹ *Ges. Abh.*, v, 418, 454-463, 579-583: Tlaloc, Ueuetetl, Xipe, perhaps Mixcouatl.

²⁰ *Am. Anthr.*, n.s., XXII, 135, 1920: fig. 8, right half, middle row, left.

Crossed legs of a figurine, showing, with that of the "fire-god," that this attitude was more or less usual. The same holds for the Archaic generally.

Two-headed figure, body and limbs normal. A similar piece, found by Mme. Zelia Nuttall at Coyoacán, accompanies it in the show case at San Angel.

About four quadrupeds and as many birds, more or less complete.

There should also be mentioned what looks like a seal or stamp of pottery, with a handle; also a clay ring, sides slightly concave, of about finger size; and some clay balls from one to several cm. in diameter.

Of non-pottery artifacts, the most significant are probably the metates, indicative of maize culture, although carbonized corncobs mentioned by Gamio²¹ have not been preserved. One rectangular metate measures 25 by 22.5 cm., 10 cm. high; a trapezoidal one 22 by 17 cm. (15 at the narrower end) and 7 cm. high; a circular one 25 cm. in diameter, 10 cm. high. A mano is 15 by 7 by 3.5 cm. All the metates have three low, rounded, knobby feet, recalling those characteristic of Teotihuacan pottery.²²

No spindle whorl has been found at San Angel nor, so far as I know, at any other Archaic site, except for two simple pieces from Zacatenco, now at the Peabody Museum as nos. C-7033. They are button-shaped, undecorated, of soft clay, one with a small conical hole, the other with the hole punched through.

EXCAVATIONS IN THE PYRAMID OF THE SUN

The bulk of the Pyramid of the Sun at Teotihuacan is built up of clay in which occur pottery fragments and heads of Archaic type. These were encountered in the course of a tunnel dug by the Dirección de Antropología from the eastern base of the Pyramid to its center.²³ In the warehouse of the museum at Teotihuacan is a series of lots of heads, figures, sherds, obsidian blades, corresponding to 4-meter lengths of this tunnel. The heads leave no doubt as to the Archaic character of this material; that is, it already lay waste in the soil

²¹ Am. Anthr., n.s., xxvi, 311, 1924.

²² The three-legged pot, bowl, and grater, the three-legged metate, and the three-legged stool have no doubt inter-influenced one another. They are characteristic of the south Mexican, Isthmian, Caribbean, and Amazonian regions, and never became typical in the Andean or Pueblo cultures.

²³ M. Gamio, *La Población del Valle de Teotihuacan*, I, 1, 133, 1922.

when this was erected into the core of the Pyramid in Teotihuacan times. The sherds, however, differ distinctly from the Archaic sherds of San Angel. Painted fragments, instead of constituting a minority of the decorated ones, far outnumber the incised. Among the painted pieces, there are some of three and even four colors, unrepresented at San Angel; and whatever the combination, a yellowish brown ground color, rare under the pedregal, is frequent in the Pyramid.

In view of this second type of Archaic ceramics, a detailed comparison seemed advisable. The lots in the Teotihuacan warehouse, however, are only a selection of all the pottery recovered from the tunnel, and the basis of the selection was not recorded. I therefore arranged with Dr. Gamio and Sr. Reygadas Vértiz to make a fresh excavation in the tunnel, which was carried out through the courtesy of the administrator of the Archaeological Zone of Teotihuacan, Sr. Bazán, and his assistants. Two and three-quarter cubic meters of adobe were removed, and carefully examined, yielding, besides obsidian and charcoal, 7908 pottery fragments, as follows:

Lot 1, 6.3 m. from the inner end of the tunnel, 1 m. broad, high, and deep, 1430 sherds; lot 4, 34.8 m. from preceding, 1 m. broad, .5 m. high and deep, 188 sherds; lot 2, 28 m. from preceding, 1 m. broad, high, and deep, 2323 sherds; lot 3, 8.2 m. from preceding and 21.6 m. from the tunnel entrance, 1 m. broad and high, .5 m. deep, 3969; all on the north side of the tunnel except lot 2.²⁴

The pottery classifies as follows, the number of pieces of each kind being given in each instance from excavations 1, 2, 3, 4 in that order, followed by the total.

R-W, usually W on R, 3, 2, 46, 4—55; R-Y borders, 10, 21, 13, 2—46; R-Y middles, 9, 9, 1, 2—21; R-W-Y, 1, 3, 3, 1—8; R-B-Y, 0, 5, 1, 0—6; R-W-B, 0, 0, 4, 1—5; B-R, 2, 1, 13, 0—16; B-Y, 1, 1, 0, 0—2; R-R, 0, 1, 2, 0—3; B-W (perhaps overfired R-W), 0, 0, 8, 0—8; colors indistinct, 4, 9, 37, 0—50; total painted, 30, 52, 128, 10—220.

Incised, 1, 2, 5, 0—8; dented borders, 0, 2, 6, 2—10; white incised, 0; cuneiform, 0; heads, 1, 0, 0, 0—1; various modeled, 2, 5, 7, 0—14.

Plain sherds, 1396, 2260, 3823, 176—7655.

Figures 124-151 show some of these Pyramid sherds.

²⁴ According to Batres, summarized and questioned by Seler, *Ges. Abh.*, v, 419, 1915, the core of the Pyramid of the Sun consists of adobes laid parallel to the slope of the surface. As remarked by Gamio, *Pobl.*, I, i, 132, the bricks have been subjected to such pressure that they are not easy to observe. All that I saw lay flat. In places, however, there are strata sloping at the angle of the surface, or somewhat less, as shown by layers of earth containing stones. Evidently the Pyramid was raised both by laying adobes and dumping soil. It seems that the sherds are more frequent in the fill than within or between the actual adobes.

The variability between the lots is due in part to difficulty in classifying the colors on some sherds, in part to normal probability variability, and probably in part to the fact that the clay of the four areas was taken from different ground.²⁵ On the whole, however, the ceramic refuse of the Pyramid interior runs uniform, from which it may be concluded that the mass of the structure was erected, if not at one time, at least in one period. This statement of course does not refer to the outer four or five meters of the Pyramid which were lost during its restoration.

Certain differences between the material resulting from my excavation and that preserved from the driving of the tunnel under Dr. Gamio's direction, can now be explained. I classified five of the lots stored in the warehouse, nos. 2, 6, 8, 17, and 24. As these contain almost exactly the same number of decorated sherds as were obtained by me, the figures for each type can be profitably collocated.

R-W, Kroeber 55, Gamio 75; R-Y borders, 46, 7; R-Y middles, 21, 12; R-W-Y, 8, 38; R-B-Y, 6, 2; R-W-B, 5, 2; R-W-Y-B, 0, 14; B-R, 16, 13; B-Y, 2, 9; R-R, 3, 0; B-W, 8, 4; indistinct, 50, 52; incised, 8, 3; dented borders, 10, 1; total 188, 180. Or, in percentages, R-W, 29, 43; R-Y, 36, 10; R-W-Y, 4, 21; four-color, 0, 8; other combinations, 21, 16; incised and dented, 10, 2.

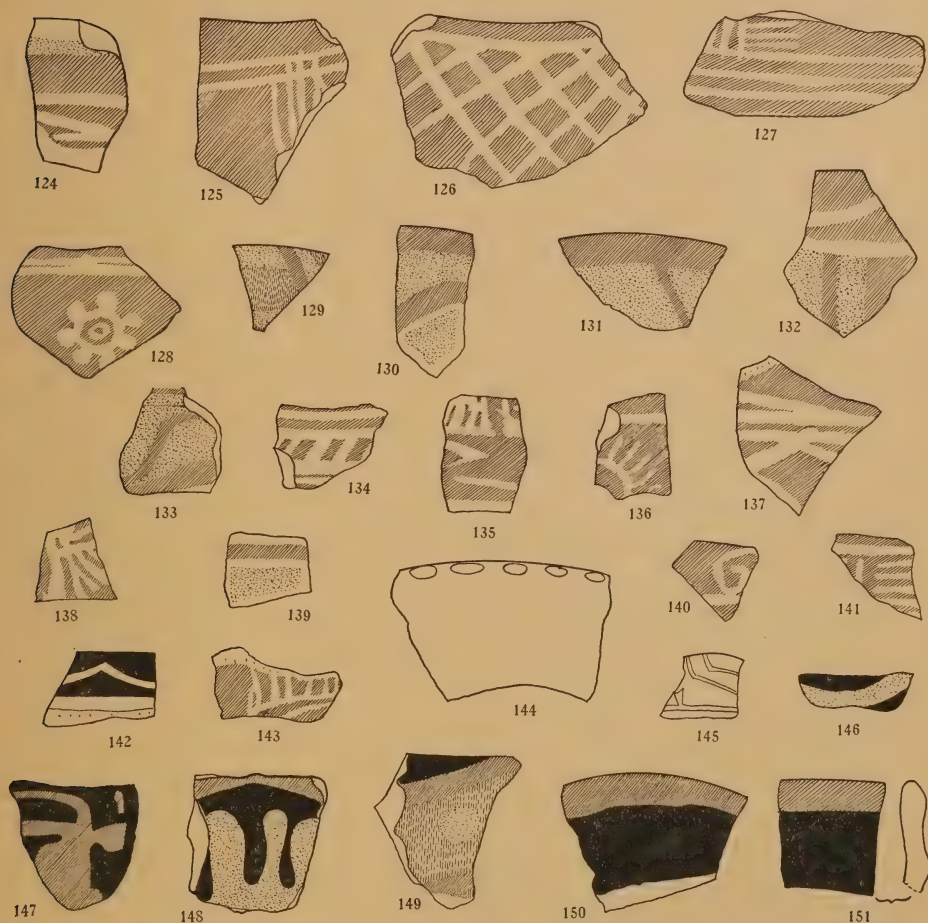
It is clear that the warehouse lots represent a selection of the more conspicuous or interesting pieces, especially the R-W combinations, which the eye seizes, whereas the R-Y offers much less contrast, especially when the red is dull and the yellow brownish, or when the fragment consists of a red border to which a bit of yellow middle adheres. The incised and dented pieces are usually small and dull in color, and therefore also easily overlooked.

That a selection has taken place is obvious from the fact that the five warehouse lots represent an excavation of about 40 c. m. against an equal number of pieces from less than 3 c. m. of my excavation. Thus perhaps less than a tenth of the decorated sherds found in the tunnel were set aside for special preservation. The five tunnel sections contained nine modeled heads;²⁶ at this ratio, 4 to 5 c. m. yield a head; actually, one was found in my 2.75 c. m. The different ratios of types in the warehouse therefore do not invalidate for comparisons the figures from my samples.

²⁵ The most striking difference is that in lot 3, the one nearest the Pyramid exterior, W much outnumbers Y, although W is in a minority in the four lots as a whole.

²⁶ Gamio, *Pobl.*, I, 1, 133.

When such comparison is made between San Angel and the Pyramid, the outstanding difference is in the ratio of painted to incised. Under the pedregal, counting only pieces unaltered by lava heat, painted sherds constitute little more than a tenth of the decorated



Figs. 124-151. Interior of the Pyramid of the Sun, Teotihuacan. $\times .5$.

ones; in the Pyramid, nine-tenths (table, p. 403). Among the painted sherds, R-W predominates at San Angel and combinations of more than two colors are very rare, whereas in the Pyramid R-Y exceeds R-W and three-color and four-color combinations constitute 10 per cent. Incised white and corrugated, which occur in appreciable proportions below the pedregal, are not represented among the 8000 sherds from the Pyramid adobes; if they occur, they must be scarce.

Inasmuch as from 96 to 98 per cent of the sherds at both sites are undecorated, these differences do not impress the eye on mass inspection; but as soon as the decorated ware is isolated, the differences are sufficiently striking.

It may be added that at San Angel R-W seems normally to represent a painting of R on W, whereas in the Pyramid the W is often overpainted on the R, and the designs, even when crudely executed, are relatively fine or small instead of massive.

Since in this comparison only those subpedregal pieces are considered that have not been rebaked by the heat of the lava flow, and since the condition of a clayey soil under five or ten meters of lava and in the pyramid must be much the same, factors affecting preservation cannot be invoked to explain the differences. Some water penetrates at San Angel through cracks in the pedregal, whereas the interior of the Pyramid was probably always dry; but moisture should not affect the color of thoroughly baked pottery; and there is no sign that it has, at San Angel.

Evidently, then, two types of Archaic must be recognized. These might represent distinctions of locality or of time. The former is the less likely alternative because San Angel and Teotihuacan lie in the same valley. If accordingly the differentiation of the types is due to time, which is the earlier? There can be little doubt that it is the subpedregal type. The Pyramid ware, in its prevalence of R-Y coloring over R-W, its use of yellowish brown ground color, its scarcity or lack of incised white, dented borders, and cuneiform, connects with the Teotihuacan style. Several of the few incised pieces also show more resemblance to the Teotihuacan manner in complexity of design than all but perhaps three or four of the subpedregal ones. There is reinforcement for the relative continuity of the Pyramid Archaic and Teotihuacan periods in the fact that among the numerous modeled heads from Teotihuacan there are a number recognized as of Transitional type.²⁷

The Archaic is thus divisible into an Early or Subpedregal Archaic, characterized by prevalence of incision, poverty of color scheme, and probable predominance in this of R-W; and a Late or presumably Postpedregal or Pre-Teotihuacan Archaic, marked by relative scarcity of incised decoration, greater elaboration of color scheme, and fondness for a Y rather than W background.

²⁷ Gamio, *Pobl.*, I, I, pls. 89-96.

COLLECTIONS FROM THE SIERRA DE GUADALUPE

Along the western edge of the Sierra de Guadalupe, north of Mexico City, at Zacatenco, Ticoman, and El Arbolillo, lies a series of Archaic sites from which material was collected and pictured by Boas and described by Gamio.²⁸ This material is intermediate between that from San Angel and that from the Pyramid in the criterion of relative frequency of painted and incised ware; also in the fact that R-W ware prevails in it over R-Y, but on the other hand three-color occurs. On the basis of the Boas Album there appears also a leaning of Zacatenco and El Arbolillo toward subpedregal, of Ticoman toward the Pyramid. Thus, painted ware versus incised or dented, Zacatenco 14-54, El Arbolillo 8-21, but Ticoman 28-22; three-color, Zacatenco 2, El Arbolillo 4, Ticoman 28.

The Album, however, represents a selection, which would invalidate the use of proportional figures. New collections, taking account at least of all decorated pottery, were therefore indicated.

The three sites lie in the order named northwestward from Guadalupe, on the lowest slopes of the Sierra, facing south or westward over the valley at their feet. The sites at Zacatenco and Ticoman are at the far or northwestern ends of the pueblos, on rocky spurs, close to the road which skirts the hills: at Zacatenco, in fact, the road crosses the deposit of sherds. The site at El Arbolillo is less prominent, and lies to the southeast of the buildings of the hacienda of

²⁸ Album (pls. 37-46, 47-53, 54-56); Text (pp. 22-39). Through Dr. Gamio, and with the assistance of Sr. Díaz Lozano, I was enabled to inspect the collections, which are in the custody of the Dirección de Antropología. The following notes supplement the Album and Text. *Zacatenco*: pl. 37:15 seems to be R and W outside, portions of the red having turned black through overfiring; the inside is black. 38:18 has alternate bands of R, Y, R, Y. 41:8 is R, W, Y in its two upper flutings, natural Y below (as elsewhere, most of the Y at these sites is quite brownish). 41:11 seems R and Y painted on a grayish paste, not B-R-W as the sketch would suggest. The underside bears a roundish leg. 41:14 is W on R, not B on W as the drawing indicates; but the W has turned lusterless and dark in firing. 43:23 seems post-Columbian, as suggested by Gamio; also 53:7 and 53:14. *Ticoman*: 47:6 is R-W-Y: the R is along the edge and in a middle horizontal band connected with the border by a triangular area. 45:3 is overfired: the successive colors downward are R, Y, R, W, B, W, B, W, R, W, R, W, muddy, slaty, R. It seems that this may have been made as a four-color piece. 49:8 is reproduced with reasonable accuracy. 49:19 is R on reddish. 50:5 is red above the loop incisions, then Y, R again below the bend, and Y below the horizontal incision. *El Arbolillo*: 54:1 is R-W with the lowest area Y. In 54:2 the area enclosed by the white lines is Y, the remaining shaded area R. In 54:5 the two upper bands of shading are R, the two lower Y. 54:7 is R and orange, a very thin ware; the incisions are worn away. In 54:19 the blank area is R, the shaded W. 54:26-28 are certainly in Teotihuacan style as stated by Gamio; perhaps 54:25 also. From the three sites, the following are incised through a plain white slip: 38:2, 39:19, 42:20, 50:4, 50:8, 50:13, 54:11, 55:13, 55:19.

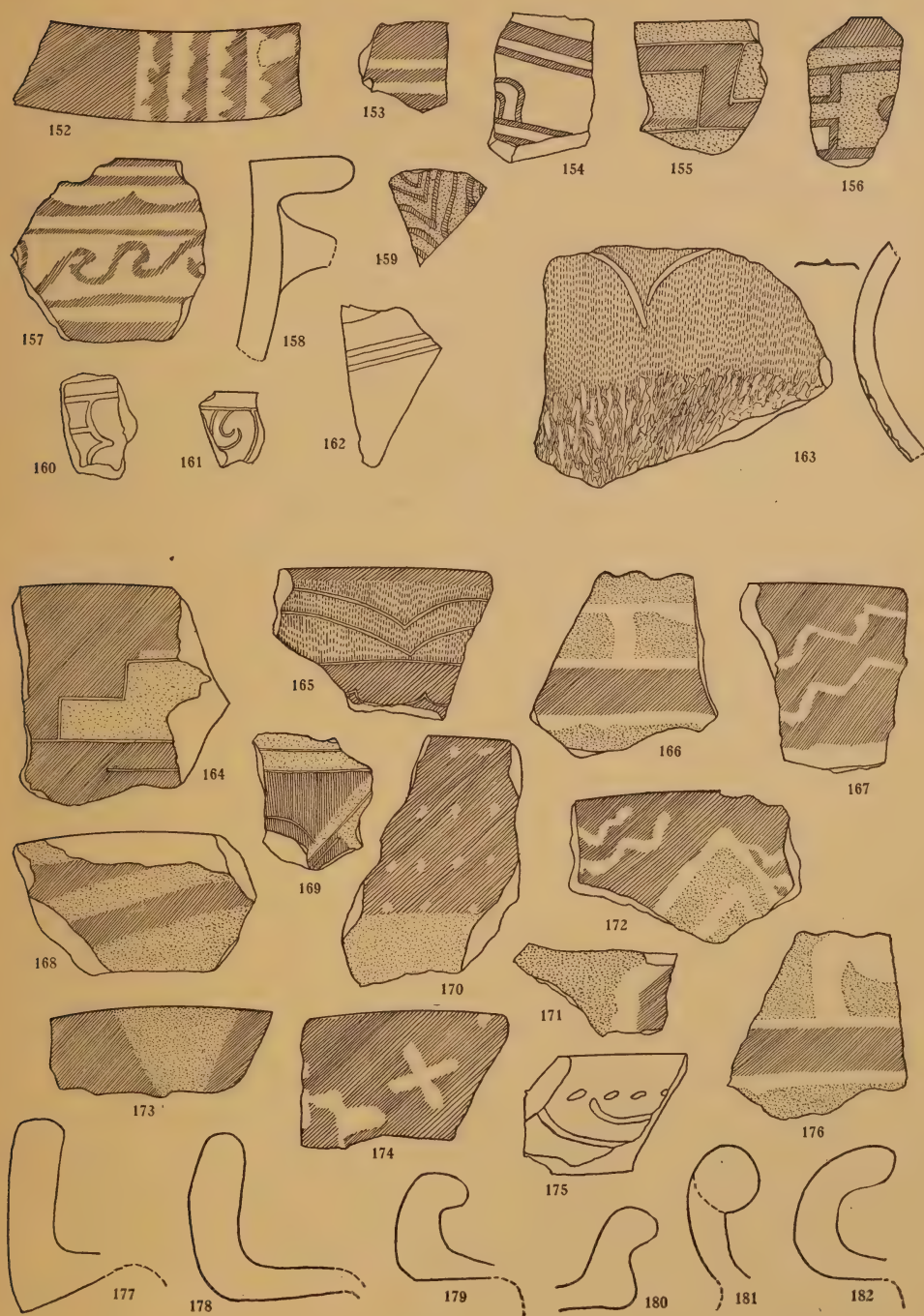
that name, situated on the floor of a northward extension of the valley. It is scarcely more than a kilometer from the Ticoman site. Sherds occur in some numbers to an altitude above the road of about 30 m. at Zacatenco, 50 m. at Ticoman, 15 m. at El Arbolillo. The hills were not followed to their summits, except the nearly isolated one at Ticoman, whose flat rocky top is almost bare of sherds; but the pottery diminishes so conspicuously toward the heights mentioned that its upper limits are evidently near them. At all three sites the heaviest occurrence is in the lower half of the range. In favorable exposures the sherds are almost unbelievably thick. At all three places they have apparently slid or washed down hill with soil and rock, but to no great vertical or horizontal distance. It looks as if all three sites were inhabited while the valley was still lake or swamp. If so, the settlements stood close to the water. On any other assumption it is difficult to understand the choice of rocky and sloping edges of declivities for habitation.

Human bones, some in fair preservation, were encountered superficially at all three sites. Excavation would probably yield more. At El Arbolillo six skulls are said to have been found in 1923. Pottery heads and figures from all three sites are illustrated by Boas and can occasionally be obtained from the villagers. None were encountered superficially, as they are salable and are therefore picked up as they become exposed.

Circumstances not favoring excavations at these three sites, superficial collections of decorated ware were made, without selection²⁹ and large enough to justify comparisons with the San Angel and Pyramid types. As the natives do not ordinarily collect sherds but only modeled pottery, the material has probably not been seriously pre-selected. Recent rains, while insufficient to wash out underground pieces, revealed colors and incisions plainly.

It was quickly apparent that, as suggested by the Boas Album, Ticoman, although situated between the two other sites, differed from them. Incised ware was less frequent, painted more common. R-Y prevailed over R-W; three-color was much more in evidence, plain W rarer, incised W not found (figs. 164-182). All these features are approaches to Pyramid type, whereas Zacatenco and El Arbolillo were nearer to San Angel, though still far exceeding it in frequency of painted ware. Ticoman also showed many heavy neck fragments (figs. 177-182), some almost 2 cm. thick, usually with the edge at

²⁹ That is, within the group of decorated ware. Plain ware was not taken.



Figs. 152-162. West foot of Cerro de la Estrella. Fig. 163. Zacatenco.
Figs. 164-182. Ticoman. $\times .5$.

right angles to the body portion, occasionally with the lip bent back outward a second time at right angles; the latter type was not encountered at the two other sites.

On my return to the United States I learned from Dr. Boas that he had excavated as well as gathered surface finds at all three sites and had deposited collections in the University of Pennsylvania Museum and the Peabody Museum of Harvard University. Through the courtesy of Director Willoughby I was able to examine and classify the latter collection, thus considerably enlarging the numbers available. The results confirm those previously obtained. I add the three series (Kroeber, Boas Album, Boas Peabody, in that order) as a matter of record. In all discussions hereafter only their aggregates will be referred to.

R-W: Arbolillo, 37, 4, 16—57; Zacatenco, 18, 12, 40—70; Ticoman, 27, 14, 34—75.

R-Y: A, 15, 0, 3—18; Z, 20, 0, 7—27; T, 89, 2, 17—108.

R-W-Y: A, 1, 4, 6—11; Z, 3, 2, 29—34; T, 23, 12, 52—87.

Total colored: A, 53, 8, 25—86; Z, 41, 14, 76—131; T, 139, 28, 103—270.

Colored and incised: A, 0, 3, 14—17; Z, 4, 11, 59—74; T, 26, 7, 71—104.

White-incised: A, 15, 3, 17—35; Z, 2, 3, 8—13; T, 0, 3, 8—11.

Line-incised: A, 3, 18, 10—31; Z, 11, 43, 73—127; T, 11, 22, 55—88.

Border-dented: A, 3, 3, 11—17; Z, 1, 11, 37—49; T, 1, 0, 31—32.

Corrugated: A, 0, 0, 1—1; Z, 12, 2, 17—31; T, 0, 0, 10—10.

Total incised: A, 21, 24, 39—84; Z, 26, 59, 135—220; T, 12, 25, 104—141.

Total pieces: A, 74, 35, 78—187; Z, 71, 84, 270—425; T, 177, 60, 278—515.

COLLECTION FROM THE CERRO DE LA ESTRELLA

The Cerro de la Estrella is the famous little peak in the center of the valley of Mexico on which new fire was made at the opening of each 52-year calendrical cycle. In the plain at its western foot lies Culhuacan. From Culhuacan comes the black on yellow Aztec pottery shown by Boas (pls. 1–31 of his Album) and classified by him⁸⁰ and Gamio⁸¹ into three subtypes. Also from Culhuacan, and obtained in the course of the same excavations that yielded the Aztec ware, Dr. Boas informs me, is an Archaic pottery (pls. 32–36 of the Album) which is of doubtful purity. A type of ware incised with somewhat crinkled parallel lines (pl. 32) seems Toltec or Teotihuacan. Gamio, after mentioning⁸² this Culhuacan material of plates 32–36 as Archaic with some pieces Teotihuacan or transitional in style, does

⁸⁰ Intern Congr. Americanists, London, 1912, xviii, 179, 1913.

⁸¹ Text, pp. 10–21.

⁸² Text, p. 7.

not discuss it further, evidently because he does not regard it as representative Archaic.

The Cerro de la Estrella begins with abrupt rocky slopes. With these begins Archaic pottery, thick as at the Sierra de Guadalupe sites. The slope soon becomes gentle and is grown to maize, but the pottery remains abundant for a quarter km. By about .5 km. from the plain it has died out. This may be called Estrella zone I, and lies, with reference to the plain and presumable ancient lake, exactly like the three Guadalupe sites. Like them, it contains virtually no Aztec material, a fact that is notable in view of its abutment on the Aztec site Culhuacan. Occasional fragments of modern ware are to be found.

Eastward uphill there follows a sterile area, after which, as a spur knoll is approached stretching southwest of the summit and perhaps 40 m. lower, pottery begins again to appear, and increases to the knoll. Absence of rock exposure and of cultivated soil make against sherds appearing as conspicuously as in zone I, but they are probably also actually less abundant. They are clearly Archaic, though whether identical with that of zone I, would necessitate excavations to determine. This is zone II.

The summit of the Cerro constitutes zone III. This is not marked off from II by any sterile belt, but differs from it in showing Aztec as well as Archaic sherds. The latter seem the more numerous, but there appear to be no abundant deposits. The Archaic fragments continue to the platform which bore the Aztec structures.

Analysis of my material shows R-Y ware far outnumbering R-W, but three-color failing entirely to appear. So far as the limited collection of decorated ware gathered on the surface permits judgment, the Estrella ware has affinities to Zacatenco and El Arbolillo on the one hand and Ticoman on the other, and may therefore be provisionally placed between them in time. A few sherds are shown in figures 152-162.

MOLINA DE MORAL

Beyond Chalco lie a railway station Molina and hacienda Molina de Moral. A couple of kilometers easterly rises a spur ridge whose name I understood to be Telolo. Crowned by a circle of trees it is otherwise in maguey. Below the trees, toward Moral, occasional sherds become visible in the maguey ditches. They become slightly more numerous, until about half-way down the length of the ridge

a small badly ruined structure of rough stones and earth is encountered. Here and for a distance downhill sherds are most numerous, though scarcely abundant. All found were rather rough reddish. The absence of any ornament forbids their classification; but they impress one as Archaic. Several fragments were collected which look like two slightly crooked fingers laid together. They suggest legs of rude figurines, but one complete example proves them handles. A similar fragment was obtained at Ticoman.

EXCAVATIONS AT CUICUILCO

This large "pyramid," really a truncated cone of earth with partial stone facing, and with what may be a spiral ramp rather than terraces, rises out of the San Angel pedregal near its southeastern edge, not far from San Fernando, a suburb of Tlalpam. To the south, nearer the edge of the pedregal and the little "river" bordering it, lies a smaller ruin consisting of two platforms, about 11 by 15 m. and 22 by 6 m. respectively, the latter, which is higher and easterly, rising about 2 m. on its eastern face. Some of the stones appear to be prepedregal andesite, and the few sherds on the surface look as if they might be Archaic but present no clear characteristics. To the southwest, a little farther away, across the stream and beyond the pedregal, rises a higher and steeper mound, now cultivated and inhabited, but still showing signs of terracing and walls. There is practically no pottery about, but the construction may be Aztec and is almost certainly post-Archaic.

Cuicuilco itself has been partly excavated and described by Cummings, in collaboration with the Dirección de Antropología.³³ At the present writing he is planning to resume work. The structure of the cone, as far as cleared and trenched by him, is apparently complex and can probably be determined with certainty only as the result of continued careful excavation. Cummings' discussion of the absolute age of the structure rests on statements which seem geologically unfoundable. There is no doubt, however, that the cone is old, and Archaic. Its shape and construction, the absence of dressed or carved stones, the pottery, all point this way. Further, the cone is clearly prepedregal, rising like an island from the sea of lava that surrounds and binds down its base and part of its flanks. Comparison with San Angel and other Archaic sites was accordingly indicated. At the

³³ Ante, p. 384, and f.n. 9.

time of my stay in Mexico, Cummings' collections were inaccessible in Arizona. I therefore undertook several sampling excavations, the four first under the edge of the pedregal, the last near the summit.

Excavation A, 1 c. m., in a tunnel driven under the pedregal by Cummings, in line with the northern edge (or a little north of it) of a staircase-like construction on the eastern side of the cone. About 1.25 m. below the lava cap were found a partial skeleton and three shallow red bowls, from 10 to 15 cm. in diameter, of thickish, not very smooth ware. Two of these lay between the forearm and thigh bones. The bones of the head, upper trunk, and arms and lower legs were not encountered.

Excavation B, 4.5 c. m., some 20 m. south of the preceding, barely south of the projection of the southerly line of the "staircase," and just north of a cross-structure extending eastward from the sloping stone facing of the cone proper where this facing runs deepest under the pedregal. Stones lay mixed in the soil as far as the excavation was carried, 1.5 m. below the lava cap.

Excavation C, 2 c. m., about 30 m. south of B, directly under the pedregal. A skull cap was found, its hollow against a stone, and a roundish pot laid above it. Between the skull and olla was a layer, from 1 to 5 cm. thick, of sherds and of somewhat cruciform pieces of a chalky material. Near by stood a jar neck, containing only earth, its bottom plugged with a ground sherd disk; and there were more of the chalky pieces, about two dozen, usually in shape of a four-lobed flower or star. They seemed made of some composition, unbaked, rather soft, and often crumbled.

Excavation D, 1.5 c. m., 3 m. south of C. There was less stone than in B and C.

In all these spots the stone seemed to be partly or wholly rolled from the slope of the cone, and the burials also to precede the pedregal flow.

Excavation E, about 1.5 c. m., was made in the face of a vertical bank, 3 m. high, left by Cummings on the west of the area in which he excavated a horseshoe-shaped "altar" outlined with waterworn boulders. The slice examined was about 2 m. from south to north at the top, somewhat less below, about 2 m. high (from the top to within 1 m. of the level of the altar), and 40 cm. deep into the bank. Its southern end did not quite reach the projection of the north line of the altar. At about 1.2 m. from the top there extended across the face of the bank a layer of stones, largely replaced in the area excavated by what appeared to be lumps of clay baked orange. Sherds were about equally numerous above and below this layer; but the yellowish "ash" or adobe in the same level a few meters to the south looked sterile.

All the Cuicuilco pottery found by me tends toward grossness, lack of polish, coarseness of body and thickness of rim. The pieces are at times bent at right angles, or twice bent so, as occasionally at Ticoman. Another resemblance to Ticoman is the presence of what appear to be ear plugs—thickish disks with concave sides, mostly of a light gray clay not baked hard. Proportionately more of them were found than at Ticoman, but they seem typical also of this site as compared with others. On the whole, ornamented pottery is relatively uncommon at Cuicuilco, 1800 sherds yielding only seven painted

fragments, six dented or corrugated, and none incised in the strict sense. Of the six, one from A was encrusted with irregular lumps set on, one from D seemed fabric-impressed on the inside, and four from E were rim dented.

Five of the seven colored sherds contain black, a color otherwise encountered only in the Pyramid, and it may be significant that only two bear W as against four with Y.

	A	B	C	D	E	Total
Volume excavated, c. m.	1	4.5	2	1.5	1.5	10.5
Number of sherds	164	886	239	375	136	1800
Colored	1	1	4	1	—	7
Incised	—	—	—	—	—	—
Dented	1	—	—	1	4	—
Ear plugs	—	9	4	2	—	15
Figurines or modeled	—	10	1	2	—	13

The sherds left here and there by Cummings showed the same tendency toward large pieces, due no doubt to their thickness. Among them were noted three that were painted seemingly either black on white or black on red, although the colors were not distinct. The only incised piece observed was a short handle with three scratches.

The resemblances to Ticoman and Pyramid, and the absence to date of white-incised, line-incised, and of true corrugated or cuneiform, suggest Cuicuilco as late Archaic. The series is far too small for positive conclusions, especially in view of Cummings' so much more abundant material remaining to be made available; but it is significant that all the present indications point to the same conclusion.

If Cuicuilco proves to be late Archaic, the fact that it as well as early Archaic San Angel is subpedregal calls for explanation. Possibly the San Angel site was abandoned long before the lava flow. At any rate, until the situation is cleared up, the term "subpedregal" or "pedregal" does not seem specifically applicable to the San Angel phase or period.

SEQUENCE OF ARCHAIC SUBTYPES

The time relations of all the sites as a group may now be considered. San Angel must be put earlier than the Teotihuacan Pyramid interior, for reasons already discussed. Zacatenco and El Arbolillo fall substantially together and between the two foregoing in degree of resemblance and therefore in presumable time sequence.

Ticomán cannot be placed with the same assurance. It differs from San Ángel more than do the other two Guadalupe sites, and is therefore later. It is also on the whole closer to Pyramid; but it also differs from this, and in a way which does not leave wholly clear whether it is to be put before or after.

The pertinent data are summarized in the adjoining table, which gives first the absolute and then the percentage frequencies of the principal types of ware at the several sites. Modeled heads and figures have not been included because with all their plasticity they offer fewer simple criteria.

CLASSIFICATION OF DECORATED POTTERY FROM ARCHAIC SITES

	Number of pieces						Percentages							
	San Angel ¹	Zacatenco ²	El Arbolillo ²	La Estrella ³	Ticomán ²	Cuicuilco ⁴	Pyramid ⁵	San Angel	Zacatenco	El Arbolillo	La Estrella	Ticomán	Cuicuilco	Pyramid
1. R-W.....	7	70	57	7	75	.....	55	9	16	30	7	15	.....	29
2. R-Y.....	2	27	18	47	108	2	67	3	6	10	50	21	15	36
3. R-W-Y.....		34	11	.....	87		8		8	6	.....	17		4
4. Containing B.....						5	40						39	21
5. Colored and incised.....		74	17	5	104		.....		17	9	5	20		.....
6. White incised.....	4	13	35	1	11	.....	.....	5	3	19	1	2	.....	.....
7. Line incised.....	41	127	31	29	88	8	.....	54	30	17	31	17	.....	4
8. Border dented.....	17	49	17	2	32	4	10	22	12	9	2	6	31	5
9. Corrugated.....	5	31	1	4	10	2	.....	7	7	1	4	2	15	.....
Total.....	76	425	187	95	515	13	188	100	99	101	100	100	100	99
Colored (1-4).....	9	131	86	54	270	7	170 ⁶	12	31	46	57	53	54	90 ⁶
Colored and incised (5).....		74	17	5	104		.....		17	9	5	20		.....
Incised (6-9).....	67	220	84	36	141	6	18	88	52	45	38	27	46	10

¹ Kroeber excavation, unburned pieces only. The collection made by Gamio contains 12 or more R-W and 2 R-W-Y sherds.

² Kroeber, Boas Mexico (Album), and Boas Peabody collections combined.

³ Surface collection.

⁴ Kroeber excavation—the only decorated pieces among 1800 sherds.

⁵ Kroeber excavation in interior. For Gamio finds see pp. 390, 392.

⁶ Fifty sherds appearing to bear from 2 to 4 colors were too indistinct to be classified and have therefore not been counted in. These would bring the ratio of colored to incised from 90-10 up to 92.5-7.5.

It will be seen that on the whole the frequencies progress, in the order attributed to the sites, as regularly as could be expected with the quantities available, with one exception: ware that is both incised and colored. This kind is lacking at both ends, occurs in the middle, and is most frequent at Ticomán. One might of course assume that this was a manner of decoration which originated, flourished, and decayed within the Archaic. But against this assumption there is the

fact that painted-incised ware reappears in the Teotihuacan period. One would therefore reasonably expect it to have been in use in the Archaic of Teotihuacan, the Pyramid-interior style, especially if this is the latest Archaic. Of course the samples of material may be at fault; but they are large enough to render it practically certain that if painted-incised occurs in the Pyramid, it is relatively infrequent—less common than at Ticoman, at any rate.

An alternative would be to place Ticoman last, after Pyramid. This more or less bridges the gap from Archaic to Teotihuacan in the matter of colored-incised ware, and also yields a smoother sequence in the development of the color frequencies R-W, R-Y, and R-Y-W. On the other hand, it lessens the regularity of development for frequency of all painted ware, of colored comprising black, of white-incised, and of colored-incised within the Archaic.

On the whole, in the present state of our knowledge, probability favors Pyramid as differing more than Ticoman from the other sites, and therefore concluding the series. The local separateness of the Pyramid, however, well to the east of the Sierra de Guadalupe sites, may be a factor. Besides, there may be divergences functional to the methods of preservation—Ticoman lying open to the elements, the Pyramid interior being sheltered but containing transported material.

Cuicuilco has been included chiefly on account of the resemblance of its rims and ear plugs to Ticoman. Its proportion of ornamented pottery is so low—less than one per cent—as not to warrant its definitive placing until fuller material is available.

The Cerro de la Estrella series is also rather small for a site at which excavation will yield abundantly; but tentatively its place seems to be where it has been put in the table.

That there existed local stylistic peculiarities in the Archaic is clear from the high proportion of white-incised at El Arbolillo—a proportion holding for both my material and Boas'.

The clearest impression of sequence is obtained by comparing the proportion of painted to incised or plastic pottery. In order to simplify, the colored-incised ware may be arbitrarily divided between the two other classes. This condensed classification shows:

	Painted	Plastic
San Angel	12	88
Zacatenco	40	60
El Arbolillo	50	50
La Estrella	60	40
Ticoman	63	37
Pyramid	90	10

The following provisional classification may therefore be made:

Archaic I. Line-incised ware in the majority; all plastic decoration frequent; proportion of color ornamentation low, R-W predominating, three-color almost lacking. *San Angel*.

Archaic II. The proportion of colored ware approaches half the total of ornamented; R-Y is more frequent, and three-color in noticeable quantity. *Zacatenco* and *El Arbolillo*.

Archaic III. The frequency of plastically decorated ware falls still lower, colored constituting more than half. R-Y exceeds R-W. *Ticomán*; perhaps *Estrella* as transitional from Archaic II; and possibly *Cuicuilco*.

Archaic IV (relation to III not wholly certain). Plastic decoration infrequent, white-incised and corrugated lacking; painted ware about nine-tenths; R-Y still prevailing over R-W, but four-color and combinations containing B in use. *Pyramid interior*.

Noncommittal number designations are used in preference to Subpedregal, Prepedregal, Postpedregal, and Pre-Teotihuacan, because the applicability of these terms to most of the sites is still too uncertain. They may all prove Prepedregal and are presumably all Pre-Teotihuacan.

AGE

The absolute age of the Archaic cannot be fixed at present. Geologists profess themselves unable even to approximate the antiquity, in years, of a recent lava flow. Statements such as have been made as to the pedregal of San Angel having flowed from Ixtle so and so many thousand years ago, are dogmatic. If the age of the Teotihuacan period were known, that of the Archaic might be inferred. But until the relations of the characteristics of the Teotihuacan culture to those of the Maya, Oaxaca, Coast, and Aztec cultures are more precisely determined, and until the presence of the small proportion of Aztec types among the remains at Teotihuacan is explained, the age of this civilization remains problematical. The persistence until recent times of Archaic types in modified form to the north, west, and east of the valley of Mexico, and even, as some see it, far into South America, is an important fact, but is not chronologically usable.

The cultural age of the Archaic may be defined as characterized probably by maize agriculture but as undeveloped in regard to spinning with mechanical contrivances. The squared and well-dressed metates suggest the former; the rarity of spindle whorls, the latter.³⁴ Possibly, therefore, cotton was not yet in use or cultivated. The

³⁴ See p. 390.

burial holes and boulder rows and pavements described by Gamio, the boulder-faced stair discovered in the course of the present work, and especially the great pyramid-like cone of Cuicuilco, are definite Archaic structures. But these are rude, without dressed or carved stone or any form of mortar or cement, without vertical walls even, and utilize only lava blocks and waterworn stones. On the side of religion, the Archaic heads and figurines belong to an objective cult practice which continued to the Conquest; although not a single divinity, or trait characteristic of a deity of later period, is positively apparent.³⁵

The culture as a whole might be perhaps roughly compared in general status to that of the Pueblos: more advanced, for instance, in possessing large erections like Cuicuilco, whose construction was dependent upon the coöperation of fairly great numbers presumably controlled by a government of some authority; more backward in its lack of true architecture in stone; and with similar variability in other features. But equation or connection with the Pueblos and their ancestors would be summary and probably erroneous, because of the Archaic possession of several culture features characteristic of the later South Mexican culture area and never found in the Pueblo area: pyramid-like and step structures, three-legged ceramics and metates, free and varied pottery modeling, for instance. Whenever the Archaic culture flourished, it already had begun to set specifically along the lines that characterized the latest pre-Columbian civilization of cultural Mexico, that is, the land between Nicaragua and the tropic of Cancer.

CONCLUSIONS

On the basis of a non-stratigraphical comparison of the frequency of several types of ceramic decoration, the Archaic culture of the valley of Mexico may be provisionally divided into four successive phases.

The sequence of these phases is marked by such features as a diminution of incising, the increasing frequency of painting, and the use of more colors.

All important Archaic traits, ceramic or otherwise, are found in equally or more developed form in the Teotihuacan civilization in which the Archaic appears to have dissolved. This circumstance of

³⁵ The figurine illustrated by Gamio, *Am. Anthr.*, n.s., xxii, 135, fig. 8, right, center, which has been designated as the old god of fire, seems probably but not certainly interpretable as such.

course does not preclude the abrupt or gradual appearance of new traits in the Teotihuacan culture.

The absolute age of the Archaic is not determinable at present. Its cultural age appears to fall after the introduction of maize agriculture and before the common use of cotton; also after the establishment of certain general objective features of Mexican religion such as pyramid-like structures and figurines, but before the individualization of the specific deities, symbols, or acts of this religion.

So far as its simple and as yet scantily known traits permit inference, the Archaic culture was already definitely of the type prevailing in the South Mexican area at the time of Caucasian discovery, and without specific features characteristic of any other area at any period.



A. Stair, excavation D, Copileo, San Angel.



B. Figurines, excavations A and B, Copileo, San Angel.

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